



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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BIN C15700  
Seattle, WA 98115-0070

Refer to:  
2002/00556

July 8, 2002

Mr. Lawrence C. Evans  
U.S. Army Corps of Engineers  
Regulatory Branch, CENWP-CO-GP  
P.O. Box 2946  
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Lake Oswego Water Intake Project along the Clackamas River at Oregon City, Clackamas County, Oregon (Corps No. 2002-00166).

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the Corps of Engineers permitting of the proposed Lake Oswego Water Intake Project along the Clackamas River at Oregon City, Clackamas County, Oregon. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and Lower Columbia River (LCR) steelhead (*O. mykiss*) in the project area. As required by section 7 of the ESA, NMFS has included reasonable and prudent measures with nondiscretionary terms and conditions that NMFS believes are necessary to minimize the potential for incidental take associated with these actions.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).



If you have any questions regarding this consultation, please contact Jim Turner, of my staff, in the Oregon Habitat Branch at 503.231.6894.

Sincerely,

*for Michael R Crouse*

D. Robert Lohn  
Regional Administrator

cc: Willa Nehlsen - USFWS  
Jim Grimes - ODFW  
Mike McCabe - DSL  
Tom Melville - DEQ  
Yvonne Vallette - EPA

Endangered Species Act - Section 7  
Consultation  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Lake Oswego Water Intake

Agency: U.S. Army Corps of Engineers

Consultation  
Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: July 8, 2002

Issued by: *for Michael R Crouse*  
\_\_\_\_\_  
D. Robert Lohn  
Regional Administrator

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## **1. ENDANGERED SPECIES ACT**

### **1.1 Background**

On March 21, 2002, the National Marine Fisheries Service (NMFS) received a request from U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 consultation for permitting of the proposed Lake Oswego Water Intake Project in the Clackamas River at Oregon City, Clackamas County, Oregon. In the March 19, 2002, letter the COE determined that the Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and Lower Columbia River (LCR) steelhead (*O. mykiss*) may occur within the project area and that these species may be affected by the proposed project. The COE initially requested informal consultation, determining that the activity would not likely adversely affect the ESA-listed species. After further discussion with the applicant, it became apparent that during project implementation, particularly isolation of the work area from the stream, some ESA-listed fish may be temporarily entrapped within the enclosure net and require handling to return them to the stream. Because the proposed action would have a short-term, temporary increase in turbidity and suspended sediment, as well as the potential to require the handling of ESA-listed fish, the COE determined that the proposed action may adversely affect these species, and requested reinitiation of formal consultation.

The objective of this biological opinion (Opinion) is to determine whether the action to reconstruct the water intake facility is likely to jeopardize the continued existence of UWR chinook salmon and LCR steelhead.

### **1.2 Proposed Action**

The COE proposes to permit the Lake Oswego Water Intake Project, Clackamas River at Oregon City, Clackamas County, Oregon. The proposed action is intended to install a new screen and update the current intake facility. The proposed action is needed to provide for increased water diversion and for appropriate levels of protection for fish that might otherwise become impinged on the intake screens.

The proposed action involves installation of a silt screen and fish barrier, placement of 600 yards of rock fill for a temporary construction pad, removal and replacement of a traveling screen, excavation of 500 yards of streambed material (predominately hardpan and bedrock), and construction of new inlet openings in an existing concrete water intake structure.

The action area is defined by NMFS regulations (50 CFR 402) as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The proposed action will include construction activities that will modify the stream bed and bank along approximately 200 feet of bankline. The construction activities will result in a temporary increase in suspended sediments and turbidity that would be expected to dissipate and be undetectable as the Clackamas River enters the Willamette River, a stream with substantially higher turbidity. The proposed action will also result in an increase in water withdrawn from the

Clackamas River. The water will be used for municipal purposes and will be exported from the area. Return water typical of municipal uses will reenter the Willamette River downstream of the confluence of the Clackamas River. The increased withdrawal of 25 cubic feet per second (cfs) from the Clackamas River may affect areas downstream from the point of diversion. This effect is considered insignificant when the Clackamas River enters the Willamette River, where flows are typically 5000 cfs or greater. For this proposed project, the action area includes the immediate project site at river mile 0.8 and downstream to the mouth of the Clackamas River.

Proposed conservation measures for the project include: (1) Maintaining channel and flooding processes; (2) implementing erosion control measures; (3) monitoring and adapting conservation measures over the long term; (4) maintaining fish passage and habitat access; (5) revegetating all disturbed and open ground; (6) screening all water intake facilities; and (7) conducting work during (Oregon Department of Fish and Wildlife (ODFW) in-water work period.

### **1.3 Biological Information**

The proposed project area is within the range of UWR chinook salmon and LCR steelhead. Listing status and references to protective regulations and biological information are found in Table 1.

UWR chinook salmon and LCR steelhead have been substantially affected by past actions limiting distribution and viability of their populations. Abundance of naturally-produced UWR spring chinook salmon has significantly decreased from the 1950's to the present, and the short-term trend indicates a strong continual decline. Current spring chinook salmon populations are primarily of hatchery origin. Habitat loss has contributed to the decline of UWR chinook salmon and LCR steelhead. As described in the BA, run timing for adult UWR chinook salmon entering the Clackamas River is March and April and February through May for LCR steelhead. Juvenile outmigration for UWR chinook salmon is primarily April through May and October through November (ODFW 1992). Peak juvenile outmigration for LCR steelhead is April through June (ODFW 1992). Essential stream features critical to the survival and recovery of these species are: Substrate, water quality, water quantity, flow characteristics, instream structure, food, riparian vegetation, and access to habitat. For the proposed action, NMFS is concerned with the low abundance and declining populations of the indicated species, the potential effects on abundance and access to spawning habitat, secondary and high water channels, hydrology and flooding patterns, connection to floodplain, vegetated riparian areas, water temperature, turbidity and suspended sediment.

**Table 1. References to Federal Register Notices Containing Information Concerning Listing Status and Biological Information for Listed and Proposed Species Considered in this Opinion.**

<i>Species (Biological References)</i>	<i>Listing Status (T-Threatened, E-Endangered)</i>	<i>Protective Regulations</i>
UWR chinook salmon (Myers et. al. 1998)	March 24, 1999, 64 FR 14308 (T)	July 10, 2000, 65 FR 42422
LCR steelhead (Busby et. al. 1995, Busby et. al. 1996)	March 19, 1998, 63 FR 13347 (T)	July 10, 2000, 65 FR 42422

#### **1.4 Evaluating the Proposed Action**

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of defining the biological requirements of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

##### **1.4.1 Biological Requirements**

The first step in the methods NMFS uses for applying ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list the species for ESA protection, and considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the subject species to survive and recover to a naturally-reproducing population level at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the indicated fish species, based upon their risk of extinction, has not significantly improved since the species were listed.

#### **1.4.2 Environmental Baseline**

The Clackamas River flows approximately 80 miles from its origin on the western slopes of the Cascade Mountains to its confluence with the Willamette River. The river's basin encompasses nearly 900 square miles with numerous tributary streams flowing into the Clackamas River as shown in Figure 3.2. The average annual rainfall in the lower basin is 60 inches with nearly 6 inches of snowfall. The upper basin has an average accumulative rainfall of 70 inches with 100 inches of snowfall. Flow in the tributary streams can fluctuate significantly as a result of low-frequency severe runoff conditions and periods of drought.

Providing some control of flow in the river are five dams located upstream of the intake structure. Four of the dams are located on the Clackamas River. The fifth is located on the Oak Grove Fork, which is a tributary to the Clackamas River flowing from Timothy Lake. The Rivermill Dam, located at RM 23.4, is the farthest downstream dam.

The baseline conditions reflect past and ongoing activities that have affected UWR chinook salmon and LCR steelhead or their designated critical habitats. Within the proposed action area, which is less than the complete range of the listed species, the current conditions include: Simplified instream habitat structure; degraded water quality, including increased temperature, turbidity, and suspended sediment; modified hydrology including the distribution, amplitude, and duration of floods; channelized stream bed; hardened stream banks; reduced large wood abundance; reduced floodplain functions; and diminished riparian forests and wetlands. As described in the BA and supporting information, current conditions are not providing the functions that supported the listed fish in the past, and that would be expected to occur naturally.

Based on the best available information regarding the current status of UWR chinook salmon and LCR steelhead range-wide, the population status, trends, and genetics, as well as the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of UWR chinook salmon and LCR steelhead are not currently being met. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR chinook salmon and LCR steelhead.

### **1.5 Analysis of Effects**

#### **1.5.1 Effects of Proposed Actions**

The effects determination in this Opinion was determined using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or*



### *Grouped Actions at the Watershed Scale (NMFS 1996).*

The proposed action has the potential to cause the following impacts to UWR chinook salmon and LCR steelhead:

#### Sediment Discharge

There may be an increase in fine sediment discharge during construction activities. Fine sediment can affect listed fish migration and spawning. There are no spawning beds downstream of the site. Adult and juvenile listed chinook salmon are not expected to be present at the project site during the work period. Adult steelhead are not expected to be present at the project site during the work period, however, juvenile steelhead may be present.

#### Channel Modifications

This proposed action will result in channel modifications to deepen a lateral pool at the intake, and temporary construction-related impacts and effects. The area will be isolated from the actively flowing stream by placing silt screens around the project perimeter, and using coffer dams and bulkheads at the intake structure. The potential to entrap ESA-listed fish exists during the initial stages of the operations when the isolation silt screen is placed. This activity will be monitored by fisheries biologists and coordinated with Oregon Department of Fish and Wildlife (ODFW). Any entrapped fish will be returned to the actively flowing stream. Dip nets or active redirecting of fish out of exclusion area will be used.

#### Increased Water Withdrawal

Increased water withdrawals have the potential to restrict habitat access, availability and quality. The biological assessment described the context for additional water that would be withdrawn from the Clackamas River by the City of Lake Oswego as an integral component of this proposed action. As described in the BA, a direct effect of the proposed intake modifications is an increase in withdrawal of water from the river.

As part of its water rights approval and administration functions, the Oregon Water Resources Department maintains streamflow records for the Clackamas River. Flow data at the intake location is not available; the closest gage is at Estacada (RM 23), upstream of the river's confluence with Clear Creek and several other streams. The lowest average monthly 80% exceedence flow at the Estacada gage is 700 cfs. The project will increase the diversion from the river by an amount not exceeding 25 cfs, or less than 4% of the flow as measured more than 20 miles upstream. These records also include figures (calculated based on historical flow data) for natural streamflow at the mouth of the Clackamas River, 0.8 miles downstream from the site of the proposed intake modifications. Natural stream flow at 50% and 80% exceedence levels indicate that at lowest flows about 822 cfs would be the minimum flow. At that level, permitted water usage for all uses is about 300 cfs or 36% of the flow. The increase of 25 cfs would be about 3% (included in the 36%).

ODFW has an instream water right on the Clackamas River for 400 cfs from July through mid-September, and for 640 cfs the remainder of the year to maintain conditions for the protection of

fish and fish habitat. Historical flow data at the Estacada gage shows that the 95% exceedence flow at that station is slightly below the instream flow water right for the months of September and October, with flows of above 600 cfs each month. Several streams feed the Clackamas downstream of the Estacada gage. Historical data from a former gage station at RM 4.8 demonstrates that flows in the lower river are 10-15% higher than the flow measured at the Estacada gage. The project's maximum 25 cfs increase in diversion at the intake 23 miles downstream should not reduce the flow below the ODFW instream flow right.

The actual flows in the Clackamas River during low-flow months are augmented by releases from upstream storage. PGE owns and operates several dams upstream of the Lake Oswego intake. Its primary storage facility is Timothy Lake Dam, the largest of the dams. Timothy Lake is operated at a stable elevation through the summer, then is drawn down beginning at Labor Day and continuing into October and November, discharging approximately 20,000 acre feet over that period. These releases are passed through PGE's downstream facilities (Gomez & Sullivan Engineers, Clackamas River Simulation Model, Draft Simulation Modeling Report, 2001). These releases are not accounted for in WRD's expected streamflow. The actual flow in the Clackamas River reflects augmentation from these releases of stored water. As a result, actual flows at 80% exceedence levels can be expected to satisfy the instream water right in all months.

The WRD's water availability data, together with streamflow gage data, and information on flow augmentation from upstream storage during low flow months, demonstrate that the expected streamflow in the Clackamas River at the intake site is adequate to support properly functioning flow conditions for anadromous fish.

Increased water withdrawals also have the potential to decrease usable shoreline habitat downstream of the diversion point. The proposed increased withdrawal would divert an additional 3% of flow during the low flow period during the summer. The diversion site is 0.8 miles upstream from the confluence with the Willamette River. Daily tidal fluctuations on the Willamette River create a backwater effect that would further decrease the length and extent of any potential loss of usable habitat. Juvenile and adult salmonids do not normally use this stretch of the river during summer months. Consequently, the small potential change in usable habitat resulting from the additional 25 cfs withdrawal is not expected to adversely affect salmonids in the project area.

#### Increased Temperature

Under sections 303 and 304 of the Clean Water Act (CWA), states or EPA set water quality standards, which combine designated beneficial uses and criteria established to protect those uses. Water bodies that are identified as failing water quality standards are designated by States under Section 303(d) as water quality limited (EPA 1994; ODEQ 1998). Currently the Clackamas River in the project area is listed on the 303(d) list for temperature. Summer salmonid rearing temperature standards (64° F) are exceeded in this area. Water bodies on the

303(d) list are subject to development of management plans to restore water quality and protect designated uses. These management plans, or total maximum daily loads (TMDL's), address both point and non-point sources of pollutants within a watershed. ODEQ is scheduled to complete a TMDL for the Clackamas River in 2003.

A modeling study (CH2M Hill 2000) concluded that the effects on temperature of a diversion of 149 cfs at RM 2.7 of the Clackamas would not be measurable. Therefore, the 25 cfs increase proposed by the City of Lake Oswego is also not anticipated to produce a measurable increase in temperature.

Given the present allocation of water rights and associated water augmentation from upstream reservoirs, it appears that any project-related reduction in water flows in the Clackamas River within the action area would not impair properly functioning habitat conditions for ESA-listed salmonids.

#### Screening Water Intake

The proposed action to modify the existing water intake will be screened to avoid entraining or harming any ESA-listed fish that may be sucked into the water intake facility. The screen has been designed so that the flows into the facility will be less than 0.4 fps for the theoretical maximum intake capability of 50 cfs. Actual anticipated maximum intake will be approximately 40 cfs. The screens have been reviewed by NMFS and determined to meet NMFS standards.

The negative effects of these activities on UWR chinook salmon and LCR steelhead will be avoided or minimized by carrying out the construction methods and approaches included in the project design, and in the proposed conservation measures. These include: Conducting work during the ODFW in-water work period when fish are less likely to be present and less vulnerable to impacts, and isolating the work area with a sediment curtain to exclude fish and minimize the downstream discharge of fine sediments at the time the work is being conducted.

### **1.5.2 Cumulative Effects**

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." For this proposed project, the action area includes the immediate project site at river mile 0.8, downstream to the confluence of the Clackamas River at the Willamette River. Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes.

NMFS is not aware of any significant change in non-federal activities that are reasonably certain to occur. NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

## **1.6 Conclusion**

After reviewing the current status of UWR chinook salmon and LCR steelhead, the environmental baseline for the action area, the effects of the proposed Lake Oswego Water Intake Project, and cumulative effects, it is NMFS' opinion that this project, as proposed, is not likely to jeopardize the continued existence of the UWR chinook salmon and LCR steelhead. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would increase turbidity and displace individual listed fish in the short term, and modify the stream channel and bank (to simplify habitat character) in the long term. The expected incremental increase in water withdrawal would not impair properly functioning flow conditions. This conclusion is based on findings that the proposed action will minimize death or injury to UWR chinook salmon and LCR steelhead by: (1) Implementing erosion control measures; (2) monitoring effects and adapting conservation measures over the long term; (3) maintaining fish passage and habitat access; (4) revegetating all disturbed and open ground; (5) screening all water intake facilities; and (6) conducting work during the ODFW in-water work period.

## **1.7 Reinitiation of Consultation**

This concludes formal consultation on the Lake Oswego Water Intake Project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending re-initiation of consultation.

## **2. INCIDENTAL TAKE STATEMENT**

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental

to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

## **2.1 Amount or Extent of the Take**

NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of the indicated fish species because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to the project action area.

## **2.2 Reasonable and Prudent Measures**

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of the above species:

1. Minimize take of listed fish by developing and implementing a construction plan to minimize work area, limit and isolate in-water work, and prepare and restore work site.
2. Monitor the implementation of conservation measures and report the results to NMFS.

## **2.3 Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, the COE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (construction), the COE shall ensure that:
  - a. Project design. Each project will be individually reviewed to ensure that all reasonable alternatives to rip rap have been considered and impacts to natural resources have been avoided, minimized and mitigated, and that the following overall project design conditions are met.

- i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
- ii. In-water work. All work within the active channel of all anadromous fish-bearing streams, or in systems which could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within the Oregon Department of Fish and Wildlife (ODFW) approved in-water work period<sup>1</sup>.
  - (1) Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.
  - (2) Isolation of in-water work area. During in-water work, if listed fish may be present, including incubating eggs or juveniles, and the project involves either significant channel disturbance or use of equipment instream, ensure that the work area is well isolated from the active flowing stream within a cofferdam (made out of sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment. Furthermore, no ground or substrate disturbing action will occur within the active channel 300 feet upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters.
    - (a) Fish screen. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NMFS' fish screen criteria.<sup>2</sup>
      - (i) The applicant will conduct annual monitoring of approach velocities at the screens to determine if localized zones of high velocities ("hot spots") are occurring. Results of the monitoring will be submitted to NMFS annually.
        - 1) If the monitoring detects hot spots, adjustable baffles will be installed in the mounts that will be included inside the tower during the construction of the proposed intake modifications. The baffles must not result in the creation of head loss to

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<sup>1</sup> Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish)([http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600\\_inwtrguide.pdf](http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf)).

<sup>2</sup> Nation Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996)(guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (<http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm>).

- the intake pumps that reduces the intake capacity to less than 26 mgd.
- (ii) The applicant will conduct regular monitoring of the water jet screen cleaning system to determine its effectiveness in keeping the screens free of debris. Results of the monitoring will be submitted to NMFS annually.
    - 1) If monitoring reveals that the screen cleaning system is not effective, the applicant will add a rake system to mechanically remove debris from the screens.
  - (b) Seine and release. Prior to and intermittently during pumping attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
    - (i) Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
    - (ii) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
    - (iii) Seined fish must be released as near as possible to capture sites.
    - (iv) The transfer of any ESA-listed fish from the applicant to third-parties other than NMFS personnel requires written approval from the NMFS.
    - (v) The applicant must obtain any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities.
    - (vi) The applicant must allow the NMFS or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.
    - (vii) A description of any seine and release effort will be

included in a post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions prior to and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.

- (c) Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow prior to returning to the creek. Discharge will occur in such a manner as not to cause erosion.
  - (d) Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.
- iii. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species throughout the construction period or after project completion. All culvert and road designs must comply with ODFW guidelines and criteria for stream-road crossings<sup>3</sup> with appropriate grade controls to prevent culvert failure due to changes in stream elevation. Channel modifications which could adversely affect fish passage, such as by increasing water velocities, are not authorized by this Opinion.
- iv. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
  - (1) Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
  - (2) Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
  - (3) A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
  - (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be

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<sup>3</sup> Appendix A, Oregon Department of Fish and Wildlife Guidelines and Criteria for Stream-Road Crossings, in: G.E. Robison, A. Mirati, and M. Allen, *Oregon Road/Stream Crossing Restoration Guide: Spring 1999* (rules, regulations and guidelines for fish passage through road/stream crossings under the Oregon Plan) (<http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/orfishps.htm>).



- available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
- (5) Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- v. Temporary access roads. Temporary access roads are designed as follows:
- (1) Existing roadways or travel paths will be used whenever reasonable.
  - (2) Where stream crossings are essential, a survey must determine and map any potential spawning habitat within 1,000 feet upstream and downstream.
  - (3) No stream crossings will occur at known or suspected spawning areas or within 300 feet upstream of such areas where impacts to spawning areas may occur.
  - (4) Where stream crossings are essential, the crossing design will accommodate reasonably foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
  - (5) Vehicles and machinery must cross riparian areas and streams at right angles to main the main channel wherever reasonable.
  - (6) Temporary roads within 150 feet of streams will avoid, minimize and mitigate soil disturbance and compaction by clearing vegetation to ground level and placing clean gravel over geotextile fabric.
  - (7) The number of stream crossings is minimized.
- vi. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the project area.
- b. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:
- i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
  - ii. The following erosion control materials are onsite:
    - (1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
    - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
  - iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place

and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

- c. Heavy Equipment. Heavy equipment use will be restricted as follows:
  - i. When heavy equipment is required, the applicant will use equipment having the least impact (*e.g.*, minimally sized, rubber tires, etc.).
  - ii. Heavy equipment will be fueled, maintained and stored as follows:
    - (1) All equipment that is used for instream work will be cleaned prior to operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
    - (2) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream.
    - (3) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
    - (4) When not in use, vehicles will be stored in the vehicle staging area.
- d. Site preparation. Site preparation, including removal of stream materials, topsoil, surface vegetation and major root systems, is completed in the following manner:
  - i. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on site or be replaced with a functional equivalent.
  - ii. Clearing and grubbing will not exceed 250 square feet within 150 feet of any stream occupied by listed salmonids during any part of the year, or within 50 feet of any stream not occupied by listed salmonids.
  - iii. Tree removal will be strictly limited.
    - (1) All perennial and intermittent streams: No tree (3 inches diameter at breast height or greater) will be removed from within 50 feet horizontal distance of the ordinary high water mark.
    - (2) On any stream supporting a listed salmonid: No more than 5 trees (3 inches diameter at breast height or greater) total may be removed from the area spanning 50 feet to 150 feet horizontal distance from the ordinary high water mark.
    - (3) Tree removal will be mitigated for onsite by a 2:1 replanting ratio.
  - iv. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
- e. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:
  - i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area.

- ii. During excavation, native streambed materials will be stockpiled above the bankfull elevation for later use. Once riprap has been placed, native materials will be placed over the top of the riprap.
  - iii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
  - iv. All exposed or disturbed areas will be stabilized to prevent erosion.
    - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,<sup>4</sup> mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.
    - (2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
    - (3) Seeding outside of the growing season will not be considered adequate nor permanent stabilization.
  - v. All erosion control devices will be inspected during construction to ensure that they are working adequately.
    - (1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.
    - (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
    - (3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.
  - vi. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
  - vii. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
  - viii. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.
- f. Site restoration. Site restoration and clean-up, including protection of bare earth

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<sup>4</sup> By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

by seeding, planting, mulching and fertilizing, is done in the following manner:

- i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
- ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation prior to October 1. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
- iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.
- iv. Plantings will be arranged randomly within the revegetation area.
- v. All plantings will be completed prior to April 15.
- vi. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
- vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
- viii. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- ix. Plantings will achieve an 80 percent survival success after three years.
  - (1) If success standard has not been achieved after three years, the applicant will submit an alternative plan to the COE. The alternative plan will address temporal loss of function.
  - (2) Plant establishment monitoring will continue and plans will be submitted to the COE until site restoration success has been achieved.

2. To implement Reasonable and Prudent Measure #2 (monitoring and reporting), the COE shall ensure that:

- a. Monitoring and reporting. Within 30 days of completing the project, the applicant will submit a monitoring report to the COE describing the applicant's success meeting their permit conditions. This report will consist of the following information:
  - i. Project identification.
    - (1) Permit number,
    - (2) Applicant's name,
    - (3) Project name,
    - (4) Category of activity under which the permit was issued,
    - (5) Project location by 5<sup>th</sup> field hydrological unit code (HUC) and latilong,
    - (6) Compensatory mitigation site(s) (if any) by 5<sup>th</sup> field HUC and latilong,

- (7) Starting and ending dates for work performed under the permit, and
  - (8) The COE contact person.
- b. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
  - i. The name and address of the supervisory fish biologist;
  - ii. Methods used to isolate the work area and minimize disturbances to ESA-listed species;
  - iii. Stream conditions prior to and following placement and removal of barriers;
  - iv. The means of fish removal;
  - v. The number of fish removed by species;
  - vi. the location and condition of all fish released; and
  - vii. any incidence of observed injury or mortality.
- c. Pollution and erosion control. Copies of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
- d. Site restoration. Documentation of the following conditions:
  - i. Finished grade slopes and elevations.
  - ii. Log and rock structure elevations, orientation, and anchoring, if any.
  - iii. Planting composition and density.
  - iv. A plan to inspect and, if necessary, replace failed plantings and structures for a period of five years.
- e. A narrative assessment of the project's effects on natural stream function.
- f. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.
  - i. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
  - ii. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
  - iii. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

### **3. MAGNUSON-STEVENSON ACT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

### **3.2 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat, “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate. “Substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities. “Necessary” means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### **3.3 Identification of EFH**

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years)(PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border.

Detailed descriptions and identifications of EFH for the groundfish species are found in the Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to The Pacific Coast Groundfish Management Plan (PFMC 1998a) and the NMFS Essential Fish Habitat for West Coast Groundfish Appendix (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the Coastal Pelagic Species Fishery Management Plan (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Actions**

The proposed actions are detailed above in section 1.2. The action area has been designated as EFH for various life stages of chinook and coho salmon.

### **3.5 Effects of Proposed Action**

As described in detail in section 1.5, the proposed activities may result in detrimental short- and long-term adverse effects to certain habitat parameters. The construction activity will result in temporary increase in turbidity and suspended sediments and disturbance to riparian area. In the long term the disturbed riparian areas will revegetate. The stream bed and bank will be altered to create a lateral bedrock pool. The increased water withdrawal is not expected to change habitat use or function downstream nor affect temperature.

### **3.6 Conclusion**

NMFS believes that the proposed action may adversely affect the EFH for chinook and coho salmon.

### **3.7 EFH Conservation Recommendations**

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in sections 2.2 and 2.3 are applicable to EFH. Consequently, NMFS incorporates them here as EFH conservation recommendations.

### **3.8 Statutory Response Requirement**

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

### **3.9 Supplemental Consultation**

The Corps must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

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